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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,797	01/03/2002	Takahiro Ishikawa	WATK:193A	9986

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EXAMINER

JOHNSON, JONATHAN J

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 09/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

10/033,797

Applicant(s)

ISHIKAWA ET AL.

Examiner

Jonathan Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohame et al. (4,624,404) in view of Ushikoshi et al. (6,057,513). Ohmae et al teaches a method for bonding ceramics and metals including a ceramic member (col. 2, I. 44), a metallic member (col. 2, I. 45), a step of uniformly spreading a fine particle material including a cermet over the surface of the ceramic member (col. 2, I. 46-48, 53-55; col. 5, I. 35-38), a brazing/soldering material including a base metal of Al, Ag, Cu or Ni is disposed between the fine particle layer and the metallic member (col. 2, I. 49-52; Fig. 1 c), and subjection to thermal heating and a hot hydrostatic pressure treatment to melt the solder and forming a bonding layer comprising the cermet layer and the solder layer (col. 4, I. 56-60; col. 7, I. 56-57; col. 8, I. 1, 24, 47). With respect to the limitation requiring a fine particle material which reduces thermal stress, it is obvious that the cermet layer provided by Ohmae et al., being of the same material as instantly claimed, would meet this limitation. Ohmae et al does not teach a method for bonding ceramics and metals including a member having a dented portion and a member having a protruded portion Ushikoshi et al teaches a joint structure of metal member and ceramic member and

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method of producing the same including a ceramic member having a dented portion (col. 4, I. 31; Fig. 3), a metallic member having a protruded portion (col. 4, I. 29; Fig. 3), an electrically conductive member (brazing material) disposed between the ceramic member and the metallic member (col. 4, I. 29-30; Fig. 3), and heating with the application of pressure to bond the two members together (col. 9, I. 10-17). Both Ohmae et al and Ushikoshi et al disclose a method of bonding a ceramic member with a metallic member. (see abstracts of Ohmae et al. and Ushikoshi et al.) At the time of the invention, it would have been obvious to one having ordinary skill in the art to modify the teachings of Ohmae et al with the teachings of Ushikoshi et al. in order to bond together ceramic and metallic workpieces of specified shapes while improving joint structure and strength between the two.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmae et al in view of Ushikoshi et al as applied to claim 1 above, and further in view of Makino et al (USPN 6,390,354). Ohmae et al in view of Ushikoshi et al teaches all the limitations of claim 9 as recited above for claim 1, except for teaching wherein the fine particle material is ceramic fine particles the surface of which is coated with a metal by plating or sputtering. The fine particle material disclosed in Ohmae et al is a cermet. Makino et al teaches a method for producing a composite member including providing a ceramic member and a metallic member (col. 3, I. 25-27) and the use of fine particles of ceramics, cermet, or ceramics plated with metal to bond the two members (col. 2, I. 60 - col. 3, I. 8). Both Ohmae et al in view of Ushikoshi et al and Makino et al disclose a method of bonding a ceramic member with a metallic member. (see Ohmae et al: abstract; Ushikoshi et al: abstract; Makino et al: col. 2, I. 42-50). At the time of the

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invention, it would have been obvious to one having ordinary skill in the art to modify the teachings of Ohmae et al in view of Ushikoshi et al with the teachings of Makino et al in order to reduce the residual stress incurred with the bonding process.

Claims 1, 3, and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmae et al (USPN 4,624,404) in view of Do-Thoi et al (USPN 5,525,432). Ohmae et al teaches a method for bonding ceramics and metals including a ceramic member (col. 2, I. 44), a metallic member (col. 2, I. 45), a step of uniformly spreading a fine particle material including a cermet over the surface of the ceramic member (col. 2, I. 46-48, 53-55; col. 5, I. 35-38), a brazing/soldering material including a base metal of Al, Ag, Cu or Ni is disposed between the fine particle layer and the metallic member (col. 2, I. 49-52; Fig. 1c), and subjection to thermal heating and a hot hydrostatic pressure treatment to melt the solder and forming a bonding layer comprising the cermet layer and the solder layer (col. 4, I. 56-60; col. 7, I. 56-57; col. 8, I. 1,24,47). With respect to the limitation requiring a fine particle material which reduces thermal stress, it is obvious that the cermet layer provided by Ohmae et al, being of the same material as instantly claimed, would meet this limitation. Ohmae et al does not teach a method for bonding ceramics and metals including a member having a dented portion and a member having a protruded portion with one or a plurality of holes in which a hard solder is inserted. Do-Thoi et al teaches a method for bonding ceramics and metals including a metal member having a dented portion, a ceramic member having a protruded portion with a recess in which a solder is inserted, and heating to bond the two members together (col. 3, I. 10-11; col. 4, I. 43-57). Both Ohmae et al and Do-Thoi et al disclose a method of bonding a ceramic member with a metallic member.

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(see Ohmae et al: abstract; Do-Thoi et al: abstract). At the time of the invention, it would have been obvious to one having ordinary skill in the art to modify the teachings of Ohmae et al with the teachings of Do-Thoi et al. in order to bond together ceramic and metallic workpieces of specified shapes while improving joint structure and strength between the two.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmae et al in view of Do-Thai et al as applied to claim 1 above, and further in view of Makino et al (USPN 6,390,354). Ohmae et al in view of Do-Thai et al teaches all the limitations of claim 9 as recited above for claim 1, except for teaching wherein the fine particle material is ceramic fine particles the surface of which is coated with a metal by plating or sputtering. The fine particle material disclosed in Ohmae et al is a cermet. Makino et al teaches a method for producing a composite member including providing a ceramic member and a metallic member (col. 3, I. 25-27) and the use of fine particles of ceramics, cermet, or ceramics plated with metal to bond the two members (col. 2, I. 60 - col. 3, I. 8). Both Ohmae et al in view of Do-Thai et al and Makino et al disclose a method of bonding a ceramic member with a metallic member. (see Ohmae et al: abstract; Do Thai et al: abstract; Makino et al: col. 2, I. 42-50). At the time of the invention, it would have been obvious to one having ordinary skill in the art to modify the teachings of Ohmae et al in view of Do-Thai et al with the teachings of Makino et al in order to reduce the residual stress incurred with the bonding process.

Claims 1 and 4-9 are rejected under 35 U.S.C. 103(a) as being obvious over Ushikoshi et al. (6,057,513) in view of Makino et al. (6,390,354). Ushikoshi et al teaches a method for

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producing a composite member including a ceramic member having a dented portion (col. 4, I. 31-32; Fig. 3), a metallic member having a protruded portion (col. 4, I. 27-29; Fig. 3), disposing a hard solder wherein the base metal comprises Cu, Ni, Ag, and Al as the main ingredient on the surface of the dented portion and disposing thereon the member having the protruded portion (col. 4, I. 43-52; col. 7, I. 19-31), and a step of heating to a given temperature under application of pressure in order to bond the members (col. 9, I. 10-17). Ushikoshi et al does not teach a method including a step of previously preparing the member having the protruded portion at the end of which is formed a layer comprising a hard solder and a fine particle material, wherein the fine particle material reduces thermal stress and is ceramic, cermet, low-expansion metal fine particles, or ceramic fine particles coated with a metal by plating or sputtering. Makino et al teaches a method for producing a composite member including a ceramic member (col. 4, I. 29), a metallic member (col. 4, I. 29), disposing an adhesive composition comprising a brazing material and a fine particle material (col. 2, I. 42-63; col. 3, I. 38-45; col. 4, I. 30-63), the fine particle material reduces thermal stress and is ceramic, cermet, low-expansion metal fine particles, or ceramic fine particles coated with a metal by plating (col. 4, I. 30 - col. 5, I. 8). Both Ushikoshi et al in and Makino et al disclose a method of bonding a ceramic member with a metallic member. (Ushikoshi et al: abstract; Makino et al: col. 2, I. 42 - 50) At the time of the invention, it would have been obvious to one having ordinary skill in the art to modify the teachings of Ushikoshi et al with the teachings of Makino et al in order to reduce the residual stress incurred with the bonding process.

Response to Arguments

Applicant argues that the Ohame et al. process does not cause the fine particles to be present when the ceramic and metal layers are being bonded because any “fine particles” in the deposited insert have been melted and uniformly bonded to the ceramic during the thermal processing. The examiner disagrees. It is the examiner’s position that since Ohame et al. teach the use of a diffusion bonding process (column 2, Lines 20-25), it is likely that fine particles would be present in the final product. Additionally, even if there is a small amount of fine particles, it is the examiner’s position that the small amount is sufficient to meet the claim limitation of the instant application. Applicant’s assertion that fine particles are not present in the final product is merely conjecture and applicant is reminded that the arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). That is, objective evidence which must be factually supported by an appropriate affidavit or declaration to be of probative value. See, for example, In re De Blauwe, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984) (“It is well settled that unexpected results must be established by factual evidence.” “[A]ppellants have not presented any experimental data showing that prior heat-shrinkable articles split. Due to the absence of tests comparing appellant’s heat shrinkable articles with those of the closest prior art, we conclude that appellant’s assertions of unexpected results constitute mere argument.”). See also In re Lindner, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972); Ex parte George, 21 USPQ2d 1058 (Bd. Pat. App. & Inter. 1991).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on

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combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Johnson whose telephone number is 703-308-0667. The examiner can normally be reached on M-Th 7AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on 703-308-3318. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1495.

jj



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